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EXAMINER	
BROOME, SAID A	
ART UNIT	**PAPER NUMBER**
2628	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,438	NOMURA, SHINPEI	
	Examiner	**Art Unit**	
	SAID BROOME	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 18 January 2008.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,9-11,14-17,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,9-11,14-17,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed on 1/18/2008.

2. Claims 1, 9-11, 14-17, 20 and 21 are original.

3. Claims 2-8, 12, 13, 18 and 19 have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake et al. (hereinafter "Aritake", US Patent 5,872,590) in view of Tatsuzawa (US Patent 6,441,844).

Regarding claims 1, 11, and 16, Aritake illustrates the method for displaying stereoscopic images of claim 1 (Fig. 8), an apparatus for stereoscopic images (Fig. 6), and storage medium for storing a program run in an apparatus for displaying stereoscopic images (Fig. 13: element 62), comprising:

converting stored model object data of first objects, made of polygons having 3D coordinates (col. 13 lines 50-54, col. 31 line 51), which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate (col. 10 lines 17-19, in which the

perceived image is formed outside a stereoscopic viewable range, and the objects are therefore displayed as planar);

converting stored model object data of second objects, made of polygons having 3D coordinates (col. 13 lines 50-65, col. 31 line 51), which are to be viewed in a stereoscopic view because of image formation positions being inside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate (col. 10 lines 1-5) to parallax coordinate camera coordinate system data for right and left eyes respectively with their origins at parallax cameras for right and left eyes (col. 10 lines 59-61, where left and right stereo images from particular viewpoints are generated using the three-dimensional model data to enable a stereoscopic parallax effect, col. 5 lines 23-26, and the model data is thereby defined within a parallax camera coordinate system), in which left and right parallax data have predetermined parallax angles (col. 10 lines 62-64, where the cameras are placed at a predefined horizontal displacement). Therefore the parallax angles are also predetermined because the parallax angles contain a direct relationship to the distance between the cameras wherein the angles of each camera must be set to a certain equivalent angle based on the distance between the cameras in order to maintain the stereoscopic effect, therefore by predetermining the distance between the cameras, the angles at which the cameras are needed to provide a stereoscopic view are predetermined as well;

the parallax camera coordinate system data for the right and left eye as image data for the right and left eye in a video memory (col. 13 lines 65-67 – col. 14 lines 1-2). However, Aritake fails to teach a reference camera coordinate system data with its origin

at a reference camera, drawing reference camera coordinate system data for the right and left eye in a video memory and synthesizing the image data for right and left eyes.

Tatsuzawa teaches a reference camera coordinate system data with its origin at a reference camera (col. 4 lines 34-38, Fig.7: element M), drawing reference camera coordinate system data, or front video system data (Fig.7: element M) for the right and left eye in a video memory (col. 2 lines 53-56), and synthesizing image data for the right and left eyes that are drawn, or stored, in the video memory and displaying the mixed stereoscopic and planar objects (col. 2 lines 48-59, where the front video signal from the reference camera, which displays the planar or two-dimensional view of the image, and the right and left stereoscopic views of the image are simultaneously displayed). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the stereoscopic parallax data of Aritake with the planar reference camera disclosed in Tatsuzawa because this modification would enable accurate imaging of polygon objects without providing undesired distorted parallax effects when the distance between the object and the observer changes, in which objects are clearly displayed in a two dimensional view from a planar reference camera if the user resides outside the stereoscopic range of the parallax cameras, thereby using an imaging apparatus that does not require specific optical system or glasses ensuring a reduction in the cost of additional components needed for the stereoscopic visualization.

Regarding claim 17, Aritake teaches that there is a 2D observing region, or planar view, which lies out of a 3D observing region, or 3D coordinate space, in which object data may be displayed in 2D (col. 10 lines 17-24, Fig.7: element 36).

Claims 9, 10, 14, 15, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake in view of Tatsuzawa and in further in view of Hoglin (US Patent 5,949,477).

Regarding claims 9, 10, 15, 20 and 21, Aritake and Tatsuzawa fail to teach that the angles are adjustable in real time and are continuously and gradually varied as a result of the adjustment. Hoglin teaches that the angles of the parallax cameras are adjustable at all times by an observer (col. 4 lines 45-47), therefore the angles are also continuously and gradually varied as a result of the adjustment by operations of the observer (col. 4 lines 29-45). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the left/right parallax cameras of Aritake, and planar reference camera of Tatsuzawa with the parallax angle adjustment capabilities of Hoglin because this combination would provide the continuous adjustment of parallax camera angles in real time depending on user input thereby allowing the adjustment of parallax cameras during rendering of stereoscopic images to ensure the stereoscopic effect is maintained, resulting in an improved display.

Regarding claim 14, Aritake and Tatsuzawa fail to teach the adjustment of the camera parallax angles in real time by the geometric unit from signal input form the input unit. However, Hoglin teaches that the angles of the parallax cameras are adjustable at all times by the input of an observer in real time (col. 4 lines 45-47). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the stereoscopic left/right camera disclosed in Aritake, and two dimensional reference camera taught by Tatsuzawa with the interactive parallax angle adjustment method disclosed in Hoglin because this modification would provide efficient adjustment of

parallax camera angles in real time by a user, to ensure a reduction in visual discomfort, enabling an improvement in the rendered stereoscopic images due to the provided real time user adjustment capabilities.

Response to Arguments

Applicant's arguments filed 1/18/08 have been fully considered but they are not persuasive.

The applicant argues on pg. 8 5th ¶ lines 1-2 of the remarks that Aritake does not disclose image formation positions being inside or outside a stereoscopic viewable range of a stereoscopic device in a 3D coordinate system. However, Aritake provides images of polygons displayed in a planar view when the images are formed outside of a defined viewable range (col. 10 lines 17-19), and also displays stereoscopic images while images are formed within a region inside the viewable stereoscopic range (col. 10 lines 1-5), therefore the stereoscopic device efficiently provides views to the user when images are respectively formed both inside and outside the stereoscopic viewable range, thereby maintaining the integrity of the displayed images through avoiding display of the stereoscopic effect while outside the stereoscopic range where visual discomfort may arise, to provide a more visually appealing interface.

The applicant argues on pg. 9 1st ¶ lines 1-9, pg. 10 2nd ¶ lines 1-10 and on pg. 12 3rd ¶ lines 1-7 of the remarks that Aritake, Tatsuzawa and Hoglin do not disclose converting stored model object data of first objects, made of polygons having 3D coordinates, which are to be viewed in a planar view because of image formation positions being outside a stereoscopic viewable range of stereoscopic display device in a

3D coordinate to reference camera coordinate system data with its origin at a reference camera, and converting stored model object data of second objects, made of polygons having 3D coordinates, which are to be viewed in a stereoscopic view because of image formation positions being inside a stereoscopic viewable range of stereoscopic display device in a 3D coordinate to parallax camera coordinate system data for right and left eyes respectively with their origins at parallax cameras for right and left eyes having predetermined parallax angles. However, Aritake provides 3D polygons that are displayed in a planar view based on the formation of the image residing outside a defined viewable range (col. 10 lines 17-24), therefore it would have been obvious to modify the planar view generated in Aritake with the planar reference camera data generated in Tatsuzawa (col. 4 lines 34-38) because this modification would ensure the integrity of the stereoscopic visualization is maintained through enabling accurate conversion of the three dimensional images to a planar view that is efficient located at a centralized reference camera when the images are formed outside the viewable range of the stereoscopic system, thereby avoiding attempts to display stereoscopic images at positions outside of a viewable range, which would otherwise potentially cause eye strain and visual discomfort. Aritake also clearly discloses displaying three dimensional polygon images in a stereoscopic view (col. 5 lines 23-26 and col. 10 lines 1-5) with their origin at parallax camera for the left and right eyes (col. 10 lines 59-64), in which a predefined horizontal displacement is applied to the cameras, therefore the parallax angles themselves are predetermined because the parallax angles have a direct corresponding distance between one another in order to maintain the stereoscopic effect, wherein the angles of each

camera must be oriented at particular parallax angles to provide a visually appealing stereoscopic effect.

The applicant argues on pg. 10 3rd ¶ lines 2-6 of the remarks that Tatsuzawa does not disclose reference camera coordinate system data and the parallax camera coordinate system data for right eye as image data for right eye in a video memory and drawing the reference camera coordinate system data and the parallax camera coordinate system data for left eye as image data for left eye in the video memory. However, Aritake teaches parallax camera coordinate data that provides images data for the left and right eye in video memory (col. 13 lines 65-67 – col. 14 lines 1-2), in which Tatsuzawa provides a reference camera coordinate system that provides planar front view to the observer for both the left and right eyes (col. 2 lines 53-56). Therefore in combination both Aritake and Tatsuzawa were relied upon to teach the limitations of claim 1. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant also argues on pg. 10 3rd ¶ lines 9-11 of the remarks that Tatsuzawa does not disclose synthesizing the image data for right and left eyes drawn in the video memory and displaying, on a stereoscopic display device images mixing first and second objects. However, Tatsuzawa clearly provides both planar image data (col. 4 lines 34-38) and left/right stereoscopic image data (col. 2 lines 53-56), in which both the front planar video image data, and the left/right first and second image data stream for the respective

left and right eyes, are efficiently displayed simultaneously (col. 2 lines 49-51 & lines 66-67), thereby enabling synthesis and mixing of the planar and stereoscopic image data.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Examiner, Art Unit 2628
3/28/08

/Ulka Chauhan/

Supervisory Patent Examiner, Art Unit 2628